

# PHENIX WEEKLY PLANNING

TECHNICAL SUPPORT 2010



8/19/2010

Don Lynch

# 2010 Shutdown (Overview)

Start Date      End Date

Design, Eng'g, fabrication, procurement and site preparation tasks  
in support of shutdown tasks

In Progress      12/1

Shutdown Startup Tasks

Done      Done

Gas system maintenance, repair and upgrade

In progress      12/1

PHENIX Infrastructure maintenance, repair and upgrade

In Progress      12/1

Remove RPC Prototypes

Done      Done

Remove HBD

Done      Done

Remove RXNP

Done      Done

Remove/Reinstall BBC

In Progress      9/16

Remove Re-install MPC

In Progress      9/16

RPC3N & MuTrigger unfinished business

In Progress      9/30

Remove current BP, install new BP

In Progress      9/10

DC/PC maintenance and repair (mid summer)

Done      8/13

Install RPC3S (including Absorbers)

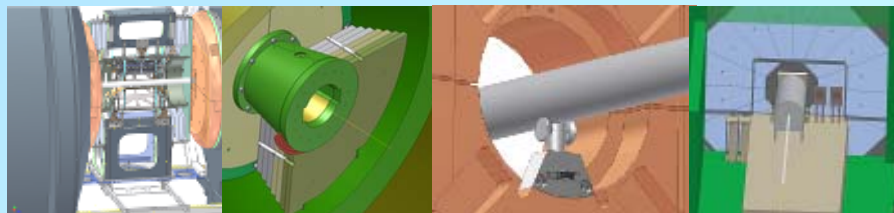
In Progress      12/1

MuTr maintenance, repair and upgrade

In Progress      8/31

Install VTX

9/13      12/1



8/19/2010

# Post Run 10 Tasks



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2010

## Task

Start Date

End Date

Send mass flowmeters out for recalibration (DC/PC, MuID, TOF.W)

In Progress

11/30

AH Crane 110 switch for lockout

In Progress

9/30

### This Week:

Continue design of survey/installation tools and fixtures for VTX

Continue fabrication of parts, installation tools and fixtures for absorber & VTX

WP for VTX

Finish DC West & PC1 maintenance, troubleshooting & Repair

Continue MuTr and MuTrigger maintenance, troubleshooting & Repair

Grout RPC3 South support bases into gap 5

Locate & Weld Absorber support stubs in North and South Flower Pot external cavity

Receive absorbers (first  $\frac{1}{2}$  shipment) from Vendor

Load test for Absorber lifting fixture

Future upgrades support

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## Next Week

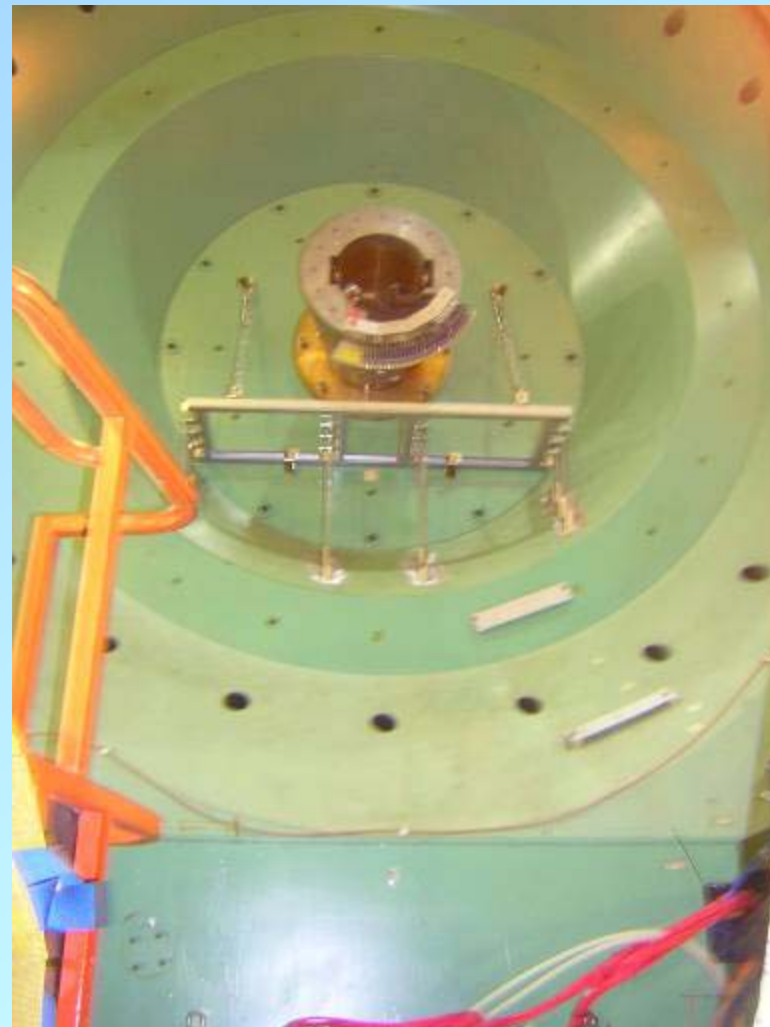
- Complete design of survey/installation tools and fixtures for VTX
- Continue fabrication of parts, installation tools and fixtures for absorber & VTX
- Continue MuTr maintenance, troubleshooting & Repair
- Continue Mu Trigger maintenance, troubleshooting & Repair
- Finish WP for VTX
- Finish locating & welding Absorber support stubs in North and South Flower Pot external cavity
- Receive and modify absorber transport and rotation cart
- Receive Remainder of absorbers
- Begin installing RPC3 South  $\frac{1}{2}$  octants (first 4)
- Begin Absorber Installation
- Future upgrades support

TECHNICAL SUPPORT NO-0



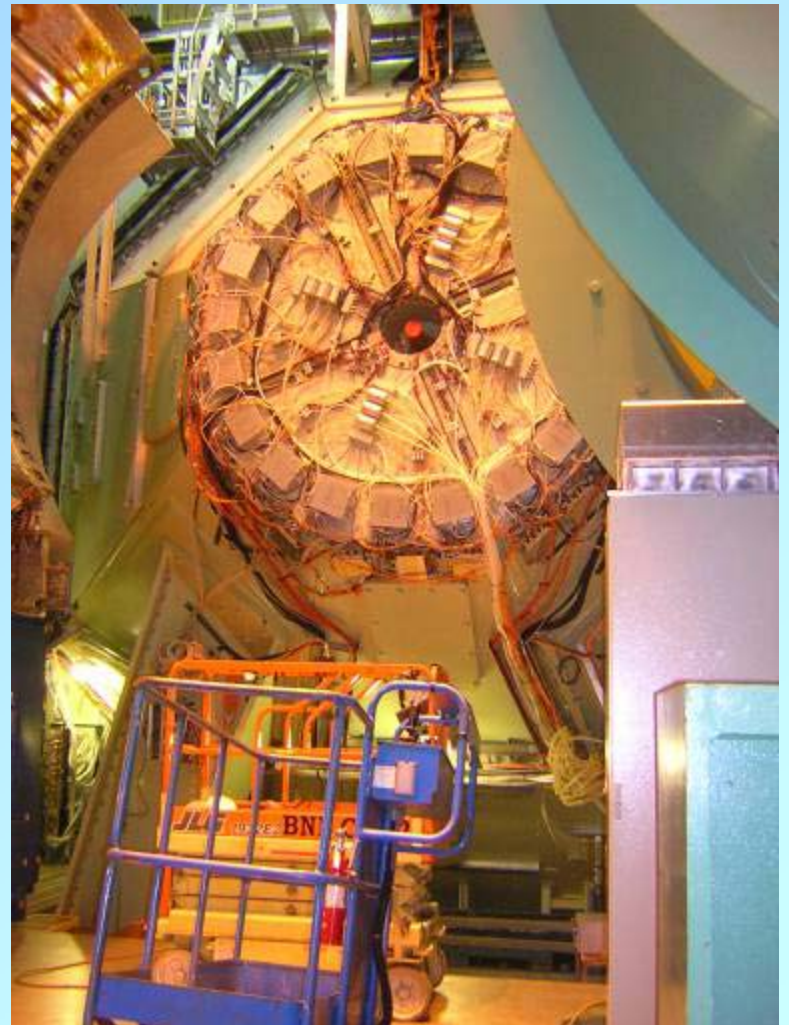


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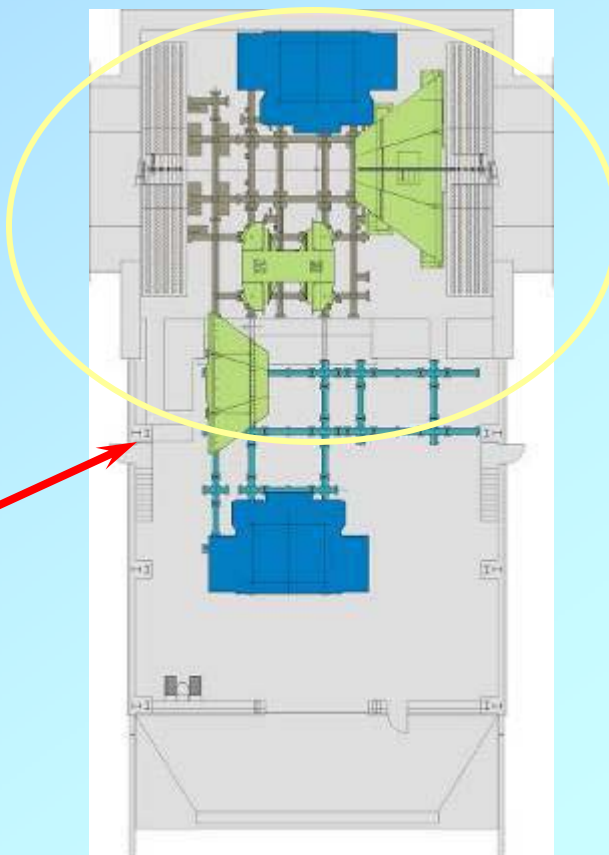
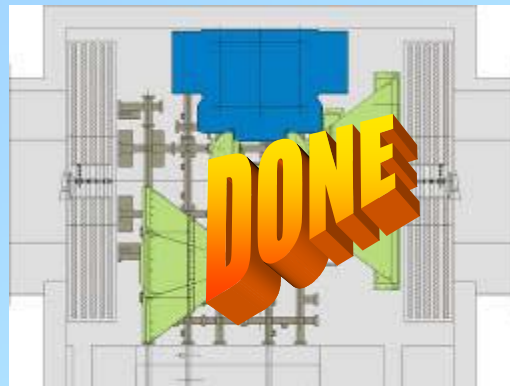
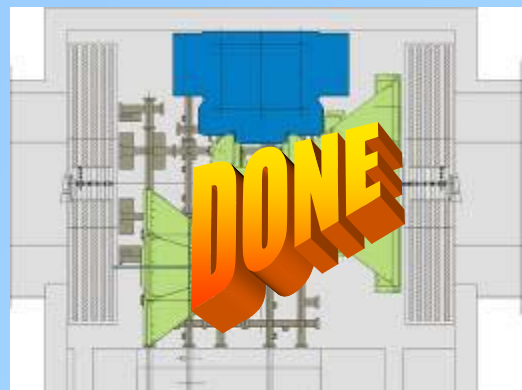
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# Removal of Existing Beampipe





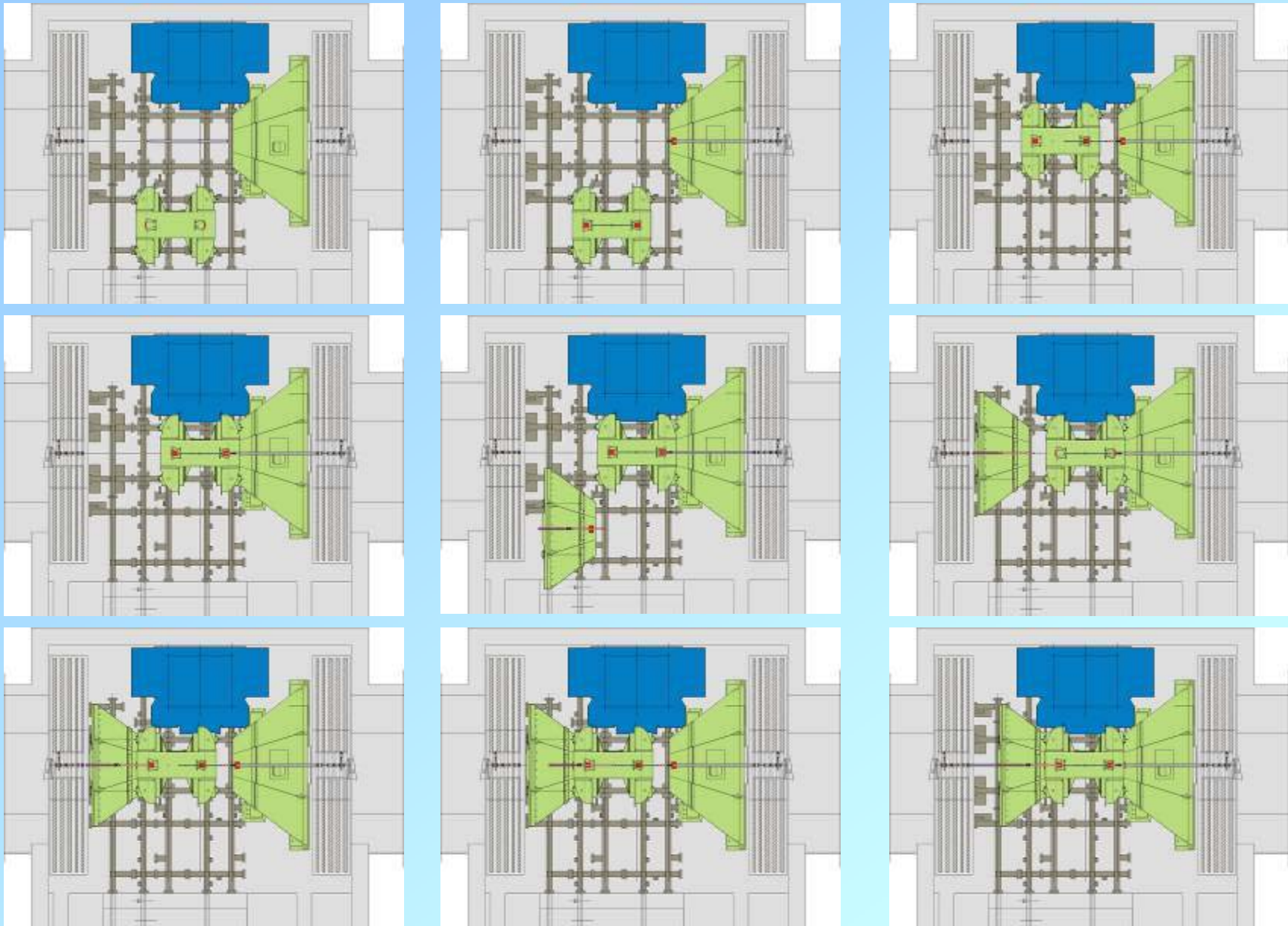
We are at this point. All BP except north 3-5" transition have been removed.



# Installation of New Beampipe

PHENIX

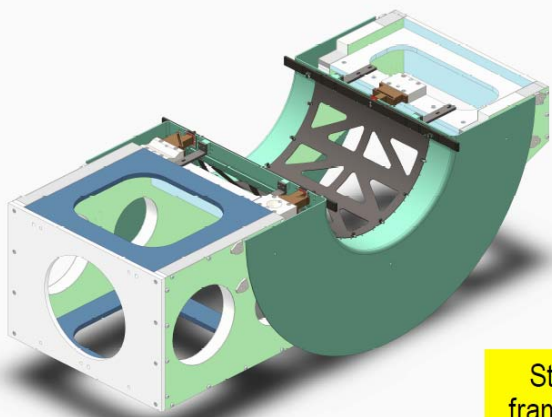
TECHNICAL SUPPORT NO-0



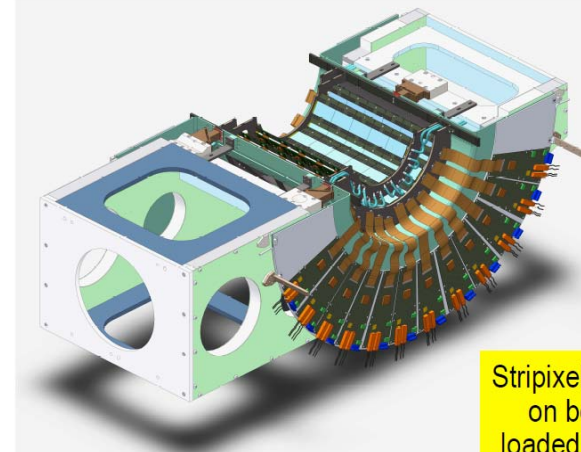
8/19/2010



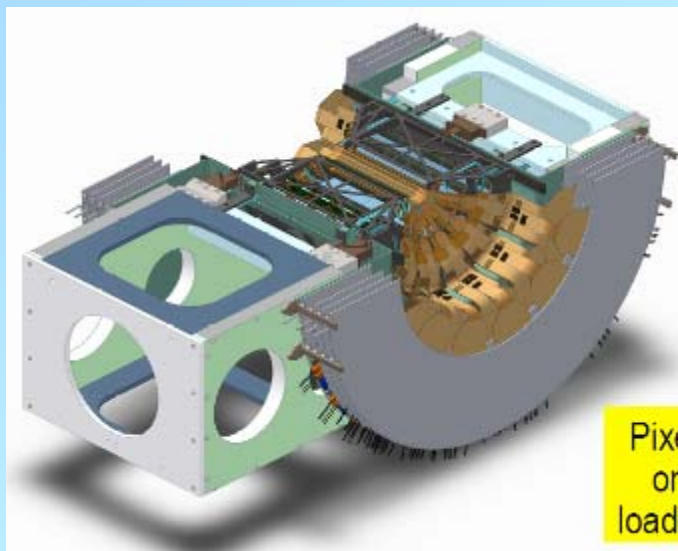
# VTX Final Assembly



Start loading  
frame Sept. 15<sup>th</sup>

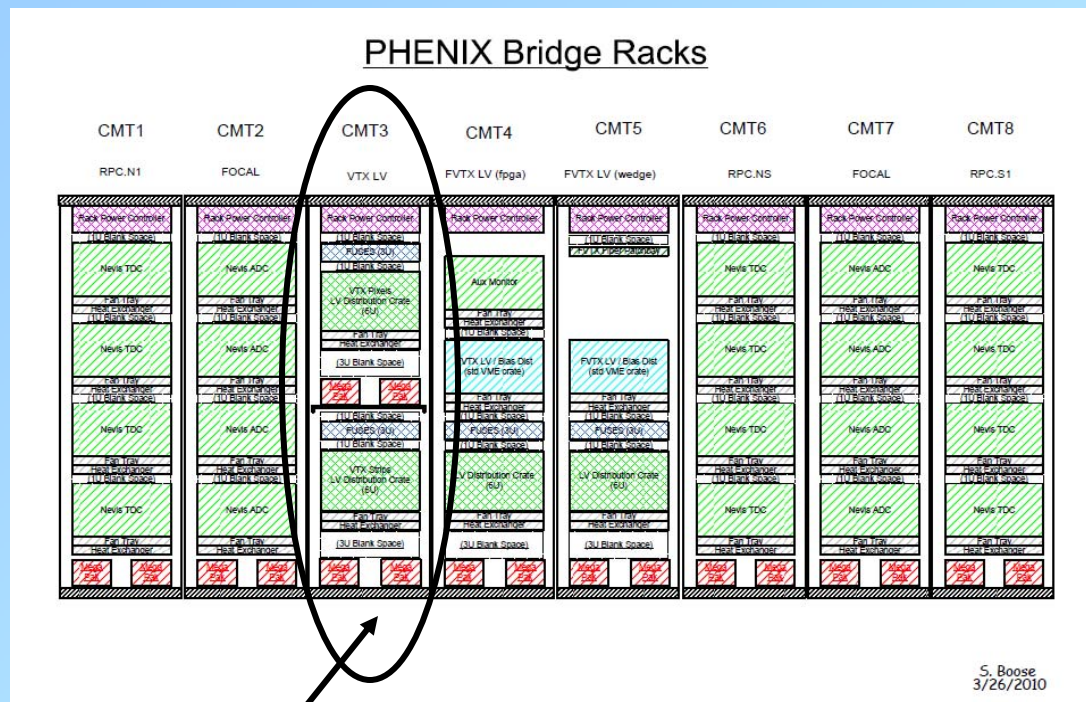


Stripixel layers L3/L4  
on both halves  
loaded by Sept 21<sup>st</sup>



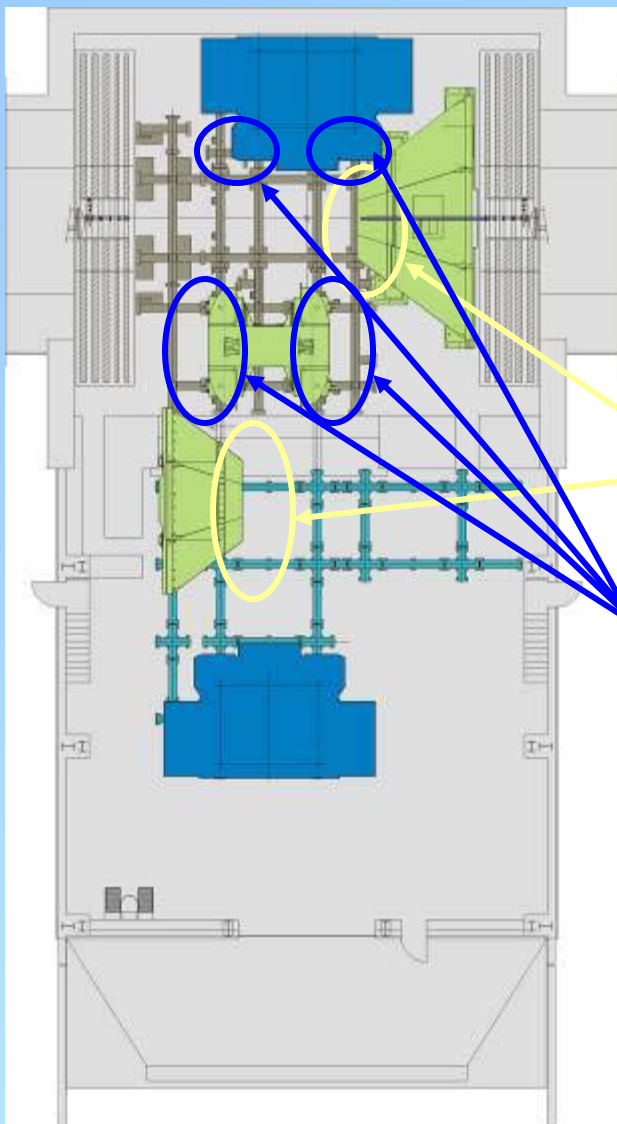
Pixel layers L1/L2  
on both halves  
loaded by Sept 30<sup>th</sup>

## Bridge Work this shutdown



This rack to be installed this summer

1. HBD, RXNP Racks to be removed intact
2. Remove electric panels from 2 north sections of bridge
3. Temporary support for water pipes and cable tray
4. Remove 2 north sections of bridge to enable absorber installation
5. Reinstall 2 north sections, reconnect plumbing and cable trays to 2 north sections of bridge
6. Upgrade electric service to support 8 racks
7. Install 1-3 racks for VTX/FVTX electronics



We expect the major PHENIX carriages and magnets to be in this configuration for most of August 2010. During this period the old PHENIX beampipe is removed, the north and south side of the CM is prepared for the absorber, the absorber is installed, work is done on MuTr and MuTrigger station 1, North and south and DC west.

Use CAD scissor-lift manlift to access work in these areas

Use the Station 1 scaffold?

Use PHENIX/CAD manlift(s) to access work in these areas

Work on EC, MuTr and MuTrigger Stations 2 and 3, and other subsystems in the EC and WC may also be performed during this period by subsystem experts, but PHENIX tech assistance will be extremely limited or not available and additional scaffolding (e.g. inside Muon magnets will not be available), and manlifts will not be available for these efforts.

## Shutdown 2010 - MuTr HV

7/1-8/31

- disabled but cannot be reached (S271-6, S311-0, S331-2, N222-6, N341-0)
- S381-5 high current - also can't be reached?

Nothing can be done w/o scaffolding

## Shutdown 2010 MuTr/MuTrigger - Other

muTrg, Itaru et al.

- south S3 O7 - threshold problem
- north S3 O1 - high noise (not reachable); S3 O4 - bad ADTX board

South arm disconnect/reconnect (fibers, power)

- lower glink/clink crates on top of eyebrow (to fit thru big IR door)
- move out/in; reconnect & test

Anode terminations

- station-1 gap-1 both arms - recap & terminate?
- station-2 all gaps, where we can reach w/o scaffolding (2 lower octants/arm) - terminate (under dry-air manifolds)?





## New Beampipe Pre-Installation Prep

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<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Receive bp back at BNL	8/26/2010	Mapes, Riggers to move from rec'g to CAD
Final acceptance and inspection bp and sections	8/31/2010	Mapes, Riggers to move from CAD to PHENIX
Fabricate BP installation and survey tools/fixtures	8/31/2010	CS

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Design fixtures, techniques and mockups for installation, alignment and survey	In Progress	PHENIX Design & Engg
Beampipe & VTX Installation Work Permits	In Progress	D. Lynch, CAD Safety Approval
BigWheel Fabrication & Procurement	8/31/2010	PHENIX, CS
Receive, inspect, test, rework and qualify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	8/31/2010	PHENIX Design & Engg
Fabricate fixtures, techniques and mockups for installation, alignment and survey	8/31/2010	CS, PHENIX Techs
Assemblies, Mock installations/alignments, bench tests	8/31/2010	PHENIX Techs
Receive & inspect components (installation, support, alignment & Survey)	9/15/2010	PHENIX Techs
Cooling system procurement	9/30/2010	Pisani Coordinate with CAD Cooling Water, Electricain

# RPC3 Pre-Installation Prep

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Fabricate/procure Absorber Installation fixtures & tools	Done	In progress @ CS, Lifting Fixture approval in progres PHENIX Techs
Fabricate Absorber Details	Done	In Progress @ Vendor & CS - RPC Group and PHENIX
Assemble, test and burn-in 1/2 octants	9/1/2010	In Progress @ RPC Factory

## Beampipe De-installation

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Move CM south and east	Done	PHENIX Techs
Remove north 3 to 5 transition	In Progress	PHENIX Techs

## Absorber Installation

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Test Absorber installation fixture	8/20/2010	Hynan & Gaffney to witness
Weld Absorber support stubs into flower pot exterior cavity	8/31/2010	CS Field welding; coordinate with Al Farland
Preamble Absorber Segments	8/31/2010	
Install North Absorber	8/26/2010	Use small manlift
Install South Absorber	9/3/2010	Use small manlift

8/19/2010



# New Beampipe installation

PHENIX

TECHNICAL SUPPORT NO-0

Task	Due By	NOTES
Prepare north 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	8/27/2010	PHENIX Techs & CAD Vacuum Techs
Install north 3 to 5 transition in MMN	8/31/2010	PHENIX Techs
Prep CM North and South for Absorber and install	9/3/2010	PHENIX Techs
Labor Day Lab Holiday	9/6/2010	Enjoy
Install new Be pipe in CM on temp supports	9/7/2010	PHENIX Techs
Move CM back to beamline & connect new Be BP to 1-5/8 transition and bellows and north 3-5 transition	9/10/2010	PHENIX TechsPHENIX Techs
Move CM to run position	9/10/2010	PHENIX Techs
Prealign Be/Alum pipe with transitions attached on new BP supports At MPC north, BBC south and north nosecone	9/10/2010	Surveyors & PHENIX Techs
Prepare south 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	9/13/2010	PHENIX Techs
Install south 3 to 5 transition, bellows and 1-5/8 to 3" transition in MMS	9/14/2010	PHENIX Techs
Move MMS back into IR on beamline	9/15/2010	PHENIX Techs
Move CM south, slide Transition ass'y in MMS north and connect to new Be BP	9/16/2010	CAD Vac & PHENIX Techs
Move CM and MMS north and install south spool. Leak check. Move MMS South	9/16/2010	PHENIX Techs
Install temporary bakeout supports	9/16/2010	PHENIX Techs
Install bakeout blankets and monitoring	9/16/2010	CAD Vacuum Techs
Bakeout New BP and activate NEG coating	9/23/2010	CAD Vacuum Techs
Leak check BP	9/23/2010	CAD Vacuum Techs
Re-install MPC's & BBC's including Cables and services	10/15/2010	PHENIX Techs Concurrent
Move CM to run position	10/15/2010	PHENIX Techs
Final alignment of new BP	10/29/2010	PHENIX Techs

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# VTX Installation, VTX Services and Electronics

PHENIX

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Presurvey VTX $\frac{1}{2}$ detectors in Chemistry lab	10/1/2010	PHENIX TECHS and BNL Survey, 1 week
All VTX detector, support, installation, alignment and survey parts and assemblies complete, ready for installation	10/1/2010	All sources
Install and align VTX rails perpendicular to beam line	10/8/2010	PHENIX Techs
Install and align west half detector module	10/15/2010	PHENIX Techs & Survey →
Install and align east half detector module	10/22/2010	PHENIX Techs & Survey →
Install mechanical support structures for VTX services and electronics	10/29/2010	PHENIX Techs Concurrent Effort →
Install Cable trays	10/29/2010	→
Install racks	10/29/2010	→
Install chiller	10/29/2010	→
Install cables, plumbing	10/29/2010	→
Connect cables and plumbing	10/29/2010	V →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Test, de-bug and commission	12/1/2010	PHENIX Techs

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## RPC3 South Prep, Early Shutdown

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Drill and tap $\frac{1}{2}$ octant and rotating piston mounting points	In progress	PHENIX Techs →
Pre-installation orientation meeting with masons and riggers	Done	PHENIX Techs Masons & Riggers →
Move east and west base structures into south tunnel and assemble on east and west sides of pedestal respectively. <del>Include translation control fixtures</del>	Done	Riggers & PHENIX techs
Install translation/pitch control hardware	8/30/2010 ↓	PHENIX Techs ↓

# RPC3 South Installation

TECHNICAL SUPPORT 20-0

Task	Due By	NOTES
Install grout	Done	PHENIC Techs & Masons
Install pitch control rails on pedestal and gap 5 east & west inner walls	In Progress	PHENIC Techs
Install upper suspension support hardware	9/3/2010	PHENIC Techs
Install $\frac{1}{2}$ octants, 2 at a time in accordance with work plan/work permit	10/1/2010, sooner is better	Riggers & PHENIX Techs
<i>Transport <math>\frac{1}{2}</math> octants 2 at a time from RPC factory to south tunnel on angled transport carts</i>		
<i>Transfer <math>\frac{1}{2}</math> octants from angled transport carts one at a time to temporary free standing and re-orienting roller fixture (fore and aft wheels and axel)</i>		
<i>Lift (and re-orient if appropriate) <math>\frac{1}{2}</math> octant and install into base structure, previously installed <math>\frac{1}{2}</math> octant or upper suspension hardware as appropriate per work plan</i>		
<i>Pre-align each <math>\frac{1}{2}</math> octant as installed</i>		
<i>Perform electrical integrity tests before proceeding to next pair of <math>\frac{1}{2}</math> octants</i>		
<i>After all <math>\frac{1}{2}</math> octants are in place and tested, join east and west halves of full south station 3 detector and align to survey markers</i>		

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## RPC3 South Integration

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Final survey	10/8/2010	Surveyors →
Install new cable trays and piping supports	10/15/2010	Electrician, PHENIX Techs earlier if possible →
Re-install MuID wiring and pipes	11/5/2010	PHENIX Techs →
Install south thermal/vapor barrier	11/19/2010	CAD contractor →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Re-install MuID gas rack	11/30/2010	PHENIX Techs →
Commissioning and final acceptance tests	11/30/2010	RPC Group
Install RPC3 HV, LV and signal wiring and gas lines	11/30/2010	PHENIX Techs
Install RPC3 South gas distribution rack	11/30/2010	PHENIX Techs
Re-install shielding	11/30/2010	Riggers
Install RPC3 South environmental controls (heaters and thermostats)	11/30/2010	Electrician



## Shutdown 2010 Other Work

TECHNICAL SUPPORT 2010

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
RPC3 North unfinished business	8/31/2010	Electronics and cabling, grounding issues, environmental controls
MuTrigger FEE unfinished business	8/31/2010	MMS cable trays,
DC/PC maintenance/repair (after EC is in)	11/15/2010	FEM and wire troubleshooting and repairs, major efforts will require longer shutdown
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
PHENIX Survey Review	11/30/2010	PHENIX Techs & Survey
Procedure Updating	11/30/2010	PHENIX Engineering
Gas Mixing House maintenance & Repair	11/30/2010	Tasks TBD
PHENIX Infrastructure maintenance, repair, upgrade	11/30/2010	TBD
Gas Pad: new gas storage details	11/30/2010	Tasks TBD
Gas Pad services for new dewar support, maintenance and improvements	11/30/2010	TASKS TBD

## Shutdown 2010 Other Work (Cont'd)

TECHNICAL SUPPORT 2010

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
AH Flood prevention improvements	11/30/2010	Tasks TBD
IR Bridge Electrical service upgrade	11/30/2010	Support for 4 full racks in 2010, 4 more (8 total) in future, PHENIX Techs & Electrician
RPC Factory Support	11/30/2010	Tasks TBD
Rack Room upgrade	11/30/2010	Includes New EB Switch
PHENIX Design Documentation	11/30/2010	PHENIX Engineering
CM Crane	11/30/2010	Currently on hold for re-evaluation
CM alignment stops	11/30/2010	TBD
Gas System maintenance, repair, upgrade	11/30/2010	Tasks TBD
Other subsystem maintenance, repair/upgrade	11/30/2010	Tasks TBD
Future upgrade support	11/30/2010	RPC1, FVTX, FOCaI, other Tasks TBD
Prepare for Run 11: EC platforms fold up in AH, fold down in IR, EC Equipment lift take down in AH, Install in IR, Install shielding wall base and build shielding wall & Install MMS Lampshade	11/30/2010	Normal end of shutdown tasks, typically taking 3-4 weeks: Riggers & Carpenters, CAD Techs
Run 11 Start	12/1/2010	
End of Shutdown Party	~12/3/2010	

# 2010 Building Maintenance Issues

TECHNICAL SUPPORT NO-0

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall and over door between control room and elect. ass'y room.
- General maintenance for Trailer Offices (in progress)
- Trailer Office Modifications planning in progress (new exterior siding)
- Roof leaks in laser room and IR (southeast corner)
- Flooding in AH/ Driveway heaving [Lake PHENIX]



Summer Sunday Spruce Up



8/19/2010



Proposed shed addition to  
Gas Mixing house

House/store  
for R134A to  
keep up with TOF West &  
RPC requirements. No  
flammable gas, standard  
shed with heat. Barn style  
doors desirable. Place on  
asphalt with no threshold to  
allow bottle management  
with pallet lifter.

To be located in front of  
AC on east side of GMH

## PHENIX Procedure Review Current Status:

## 148 Procedures Identified

- 85 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)
- 9 CAD procedures relevant to PHENIX, all are available and available on the CAD web site
- 42 Procedures (1 of these soon needs updating)
- 11 Proposed/Draft Procedures (never previously formalized) (3 are ready for review)

Web retrieval of latest procedures now available from PHENIX Internal:

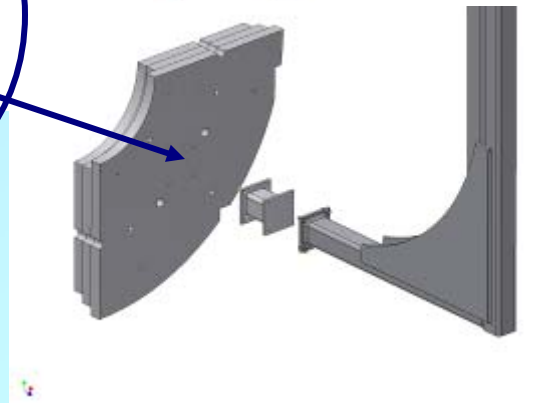
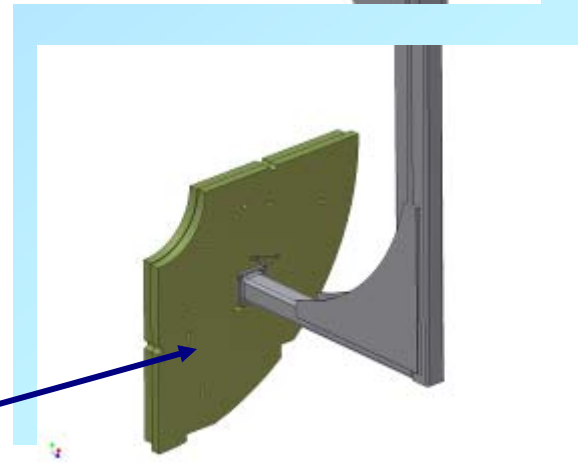
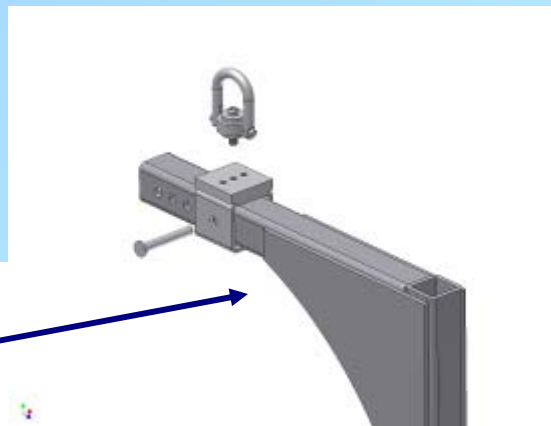
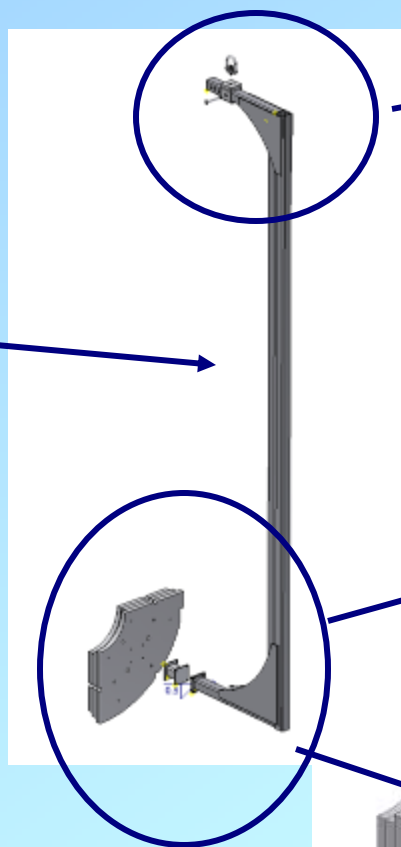
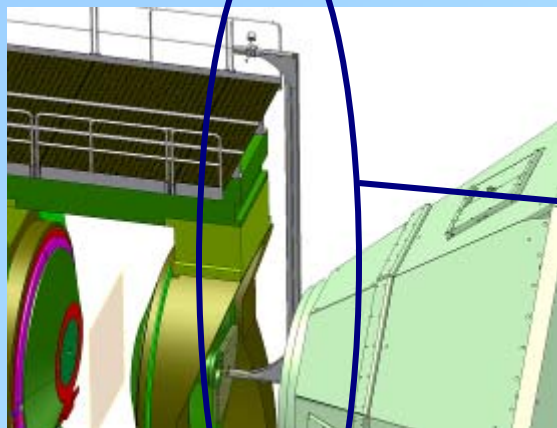
[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_procedures.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm)

TECHNICAL SUPPORT 2010

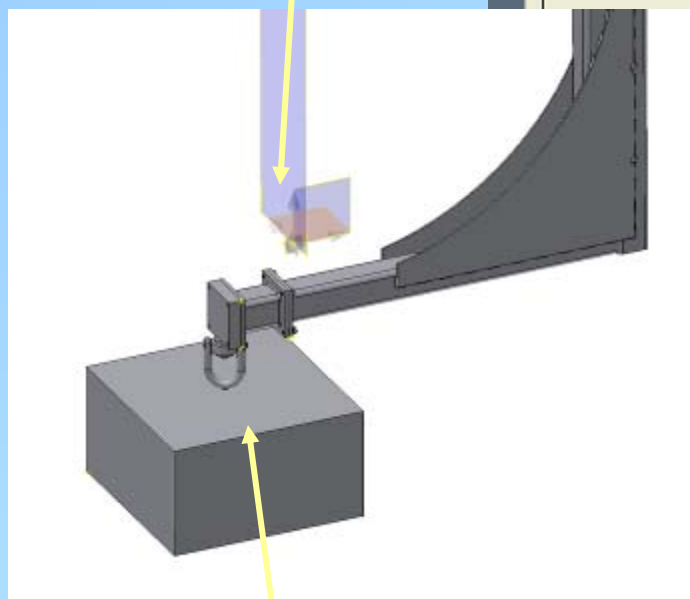


# Absorber Instalation Concept

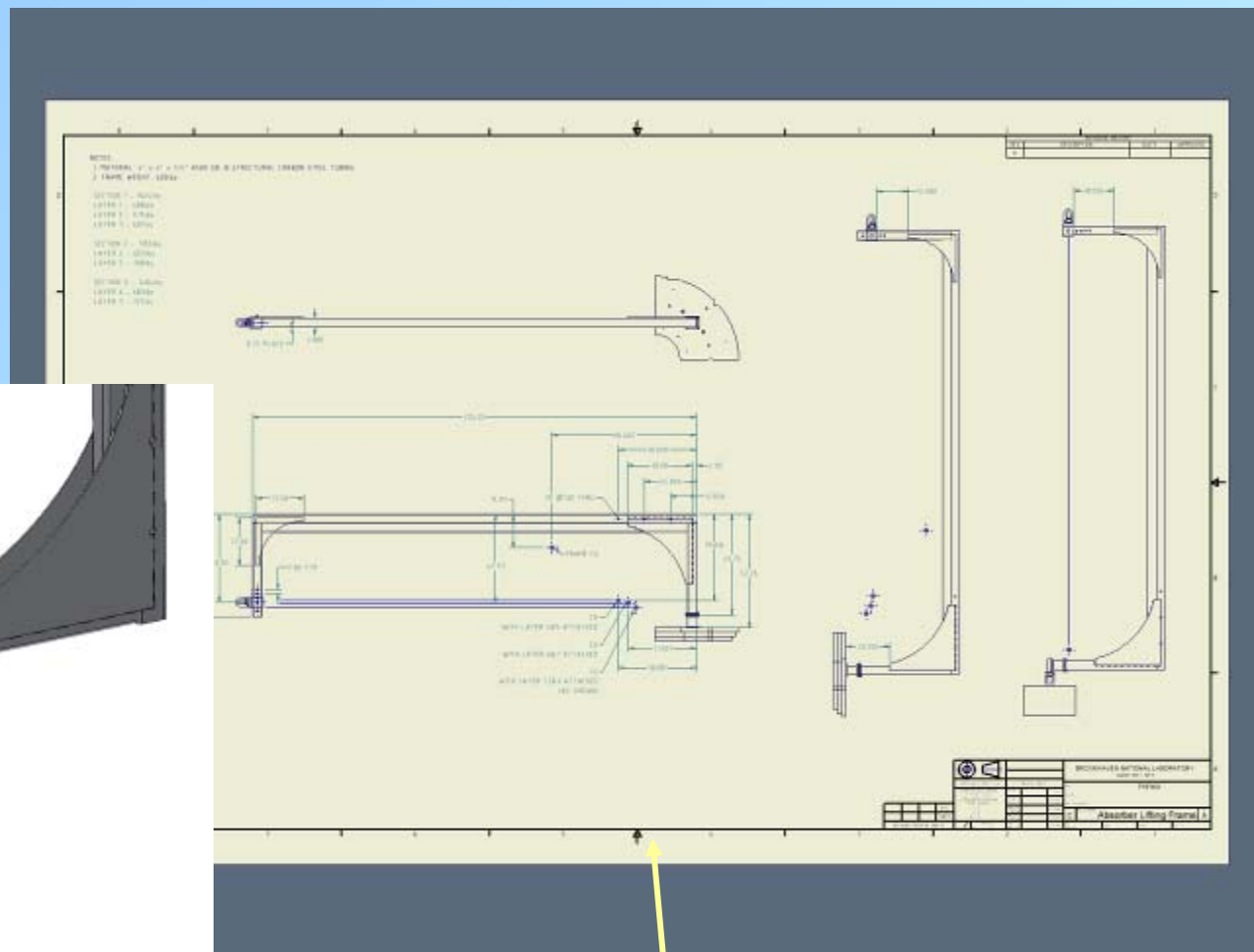
TECHNICAL SUPPORT NO-0



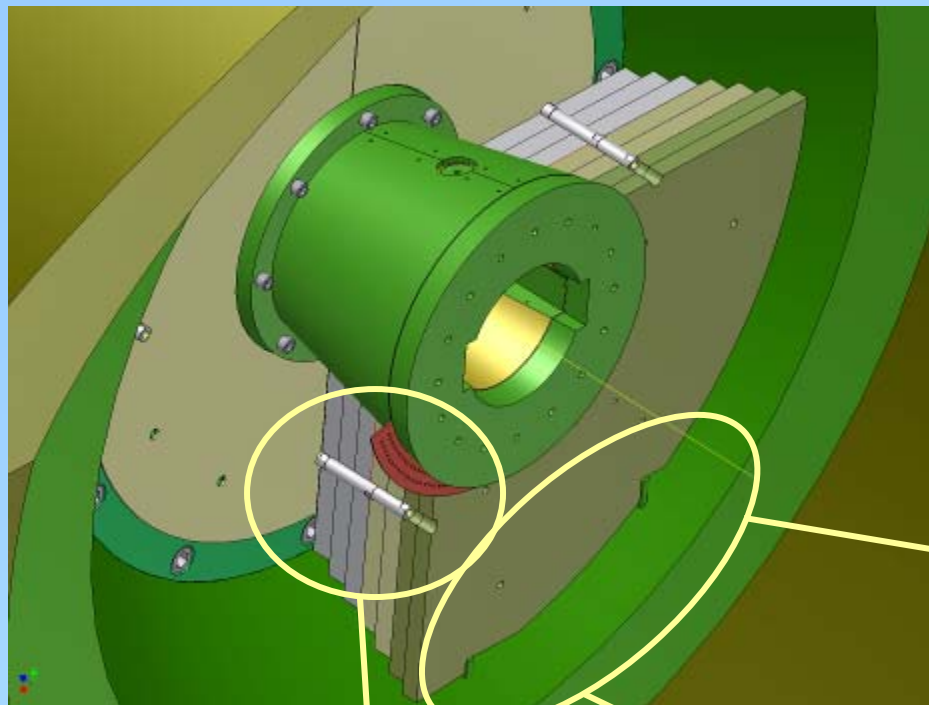
*Load Test  
Scheduled for  
tomorrow*



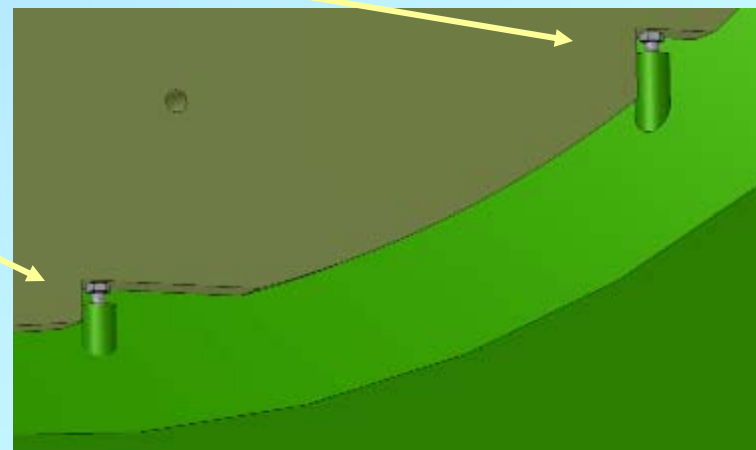
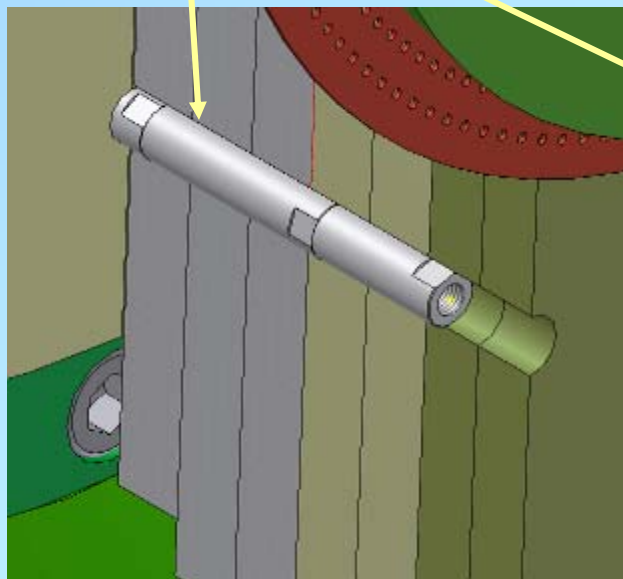
*Design for absorber lifting  
fixture test arrangement*



*Absorber Lifting Fixture, initial  
design is complete, analysis in  
progress*



RPC Absorber Installation  
begins next week



8/19/2010

# Safety, Security, Etc.

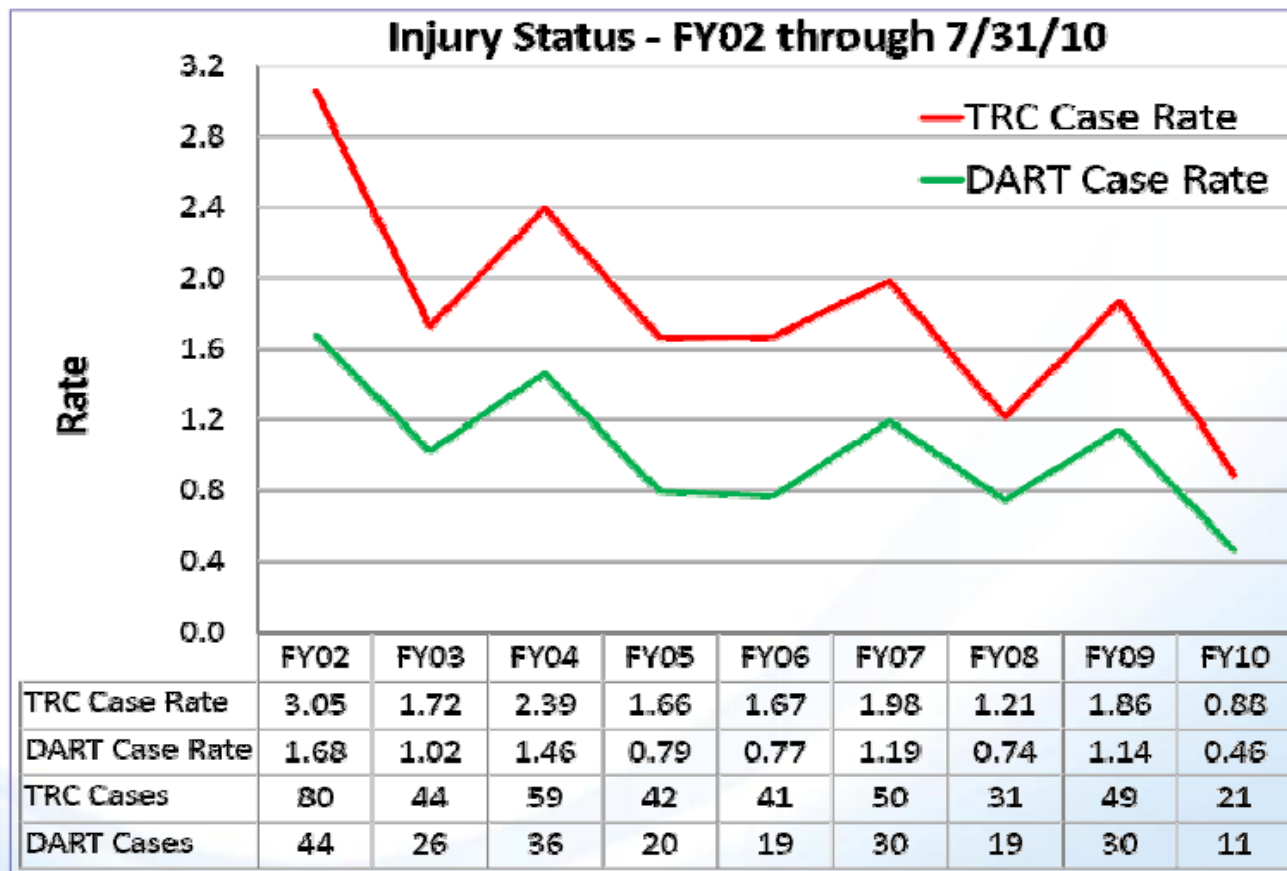
TECHNICAL SUPPORT 2010

1. In the next few weeks we will be doing a lot of simultaneous work involving cranes and heavy loads, working at heights on manlifts, confined spaces, multiple tasks on multiple subsystems, involving multiple BNL and external groups. While we try to remain on schedule, safety is more important than schedule.
  - Take the time to plan your work
  - read the work plan,
  - Wear proper PPE
  - Use proper tools
  - If in doubt stop and talk it out
  - If the work plan doesn't work, take the time to formulate a better plan and document it. In the case of EWP's check with Don to determine if additional approvals are needed.
  - Share the road and share the load. When conflicts between 2 groups arise, use common sense and common courtesy to arrange work schedules. Help out others with a heavy load if your load is light
  - No schedule is more important than our safety, a few minutes, a few hours a few days won't hurt us in the long run, but an unsafe act could hurt us in the short run
2. BNL Supervisor's meeting: Focus on Safety (see following slides)



# How are we doing?

Our overall safety performance is the best in our history

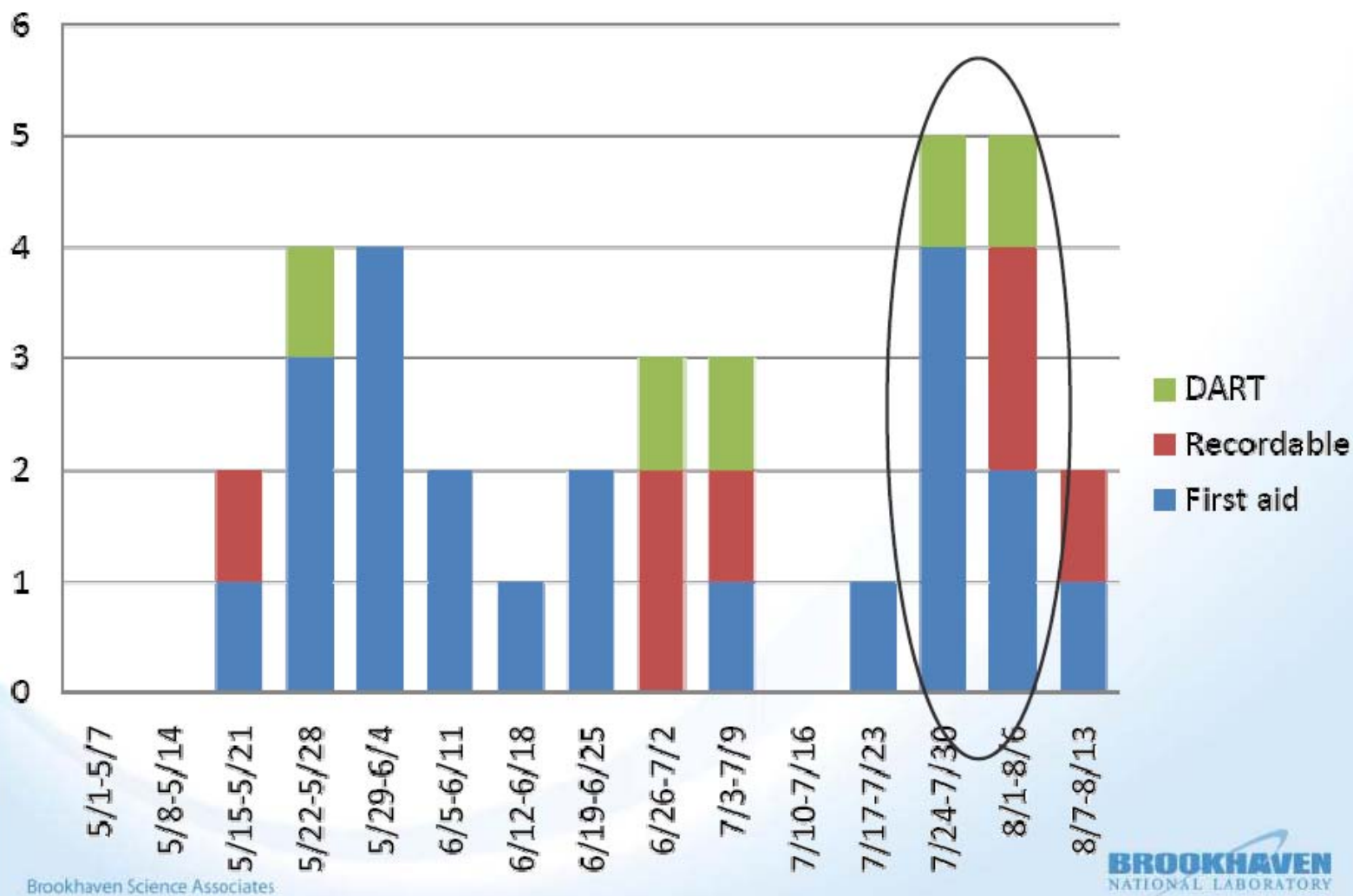


Brookhaven Science Associates

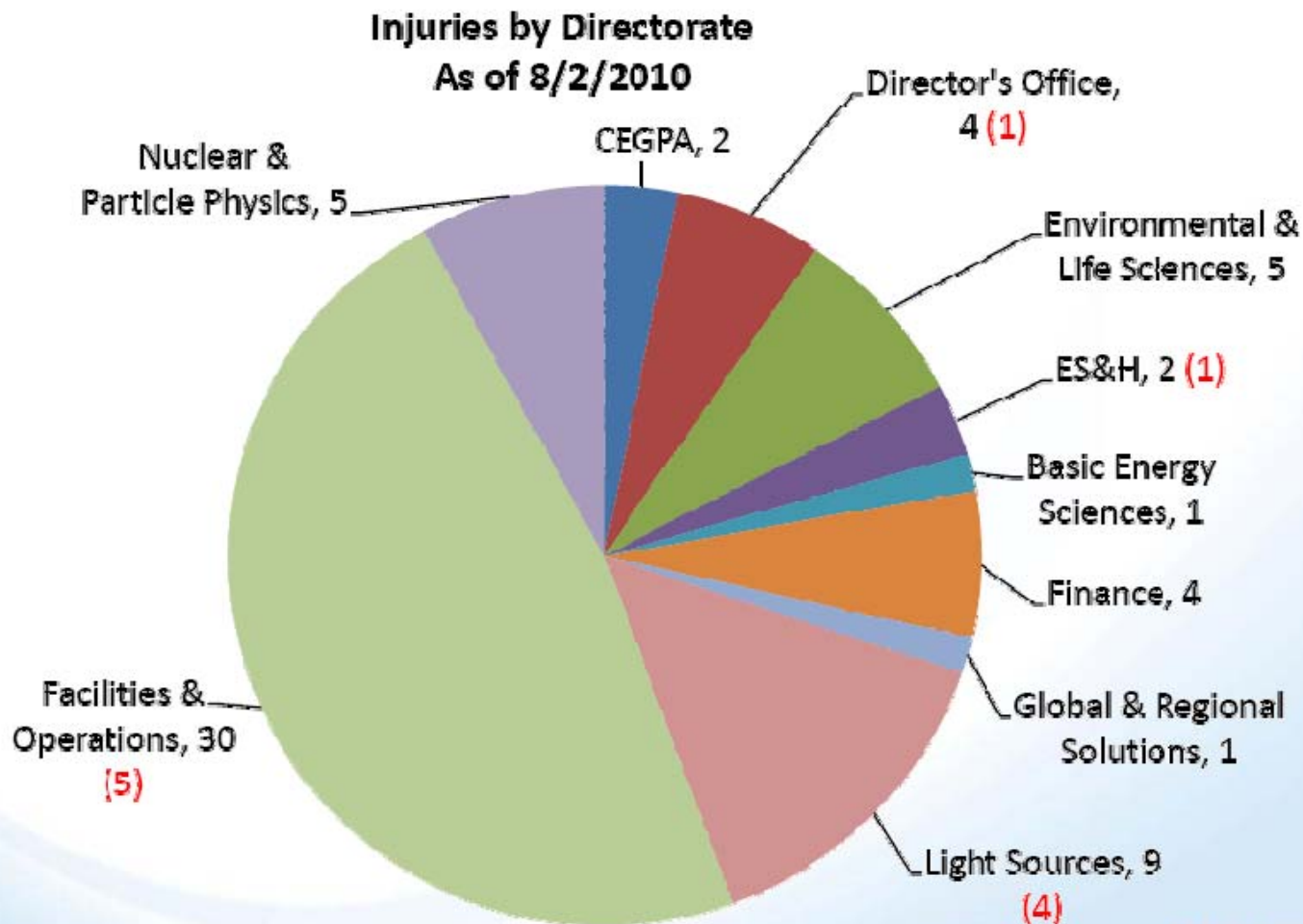
**BROOKHAVEN**  
NATIONAL LABORATORY

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## Injuries per week since 5/1/2010



# Where are injuries occurring?



Brookhaven Science Associates

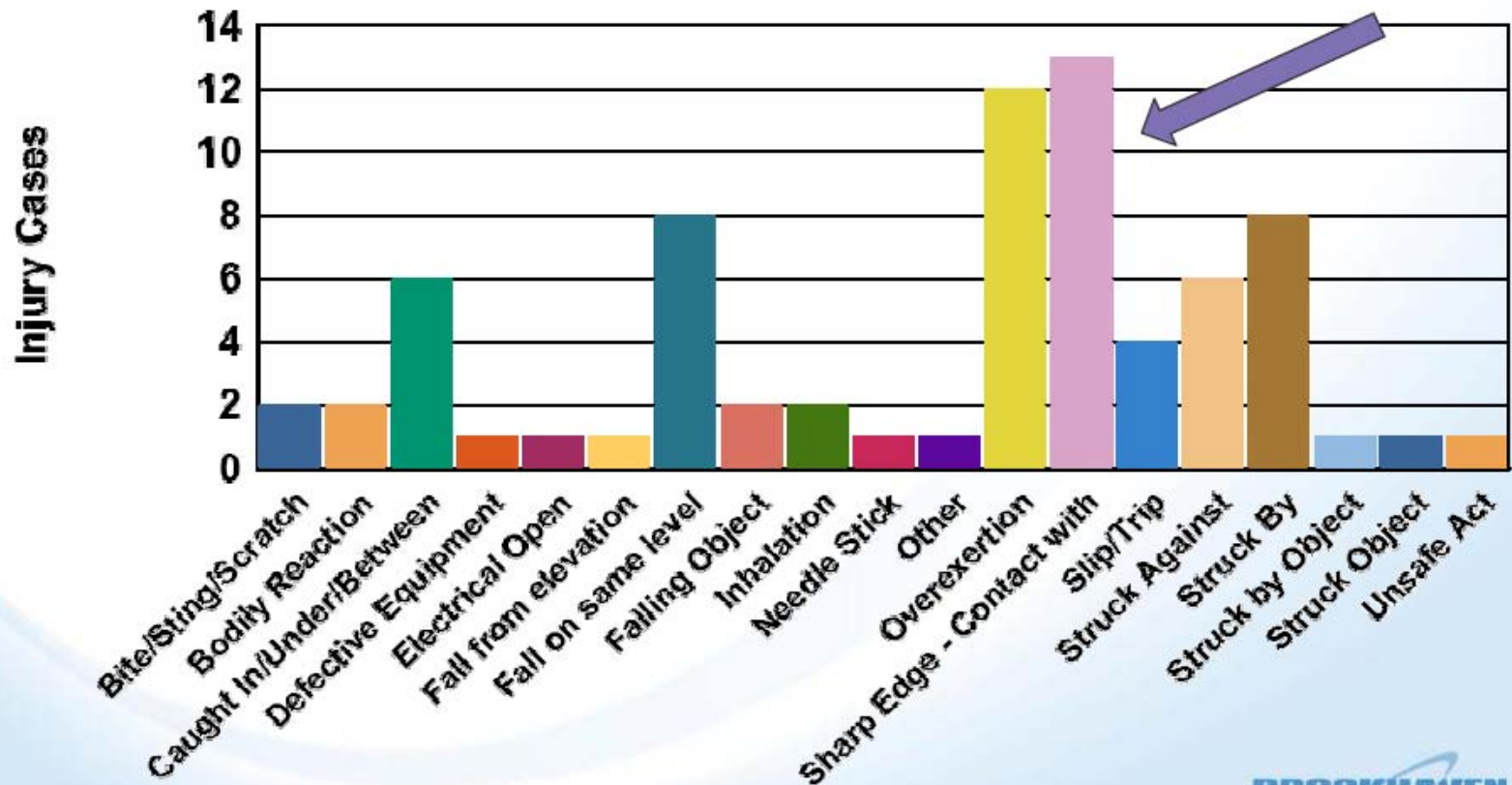
Note: black is total number of injuries, red indicates contractor injuries

BROOKHAVEN  
NATIONAL LABORATORY

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# What types of injuries are occurring?

Injuries by Injury Cause  
As of 8/17/2010



Brookhaven Science Associates

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# Where To Find PHENIX Engineering Info

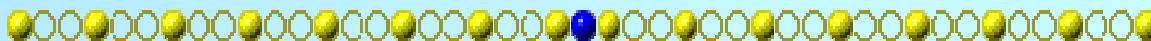


Next week things get interesting:

- New absorber installation begins
- RPC3 South installation begins
- New BP arrives

Links for the weekly planning meeting slides, archives of past meeting slides, long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)





# Completed Tasks

TECHNICAL  
SUPPORT  
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<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare Installation Plan	Done	Done
Design Absorber Installation fixtures & tools	Done	PHENIX Engg & Design
Receive purchased parts	Done	PHENIX Techs
Fabricate PHENIX parts	Done	CS, PHENIX Techs
Receive and inspect CS fabricated parts	Done	PHENIX Techs
Prepare work permit for installation	Done	Currently at CAD Safety Approval
Pre-Assemble base components at PHENIX	Done	PHENIX Techs
VTX Installation Plan	Done	PHENIX Design & Engg
Installation Review (ESRC)	Done	Set up With Y. Makdisi
Specify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	Done	PHENIX Design & Engg
End of run 10 (Party)	Done	Done
Commissioning Tests (HV, Mixed gas and Freon only)	Done	Done
Choreograph removal of old beampipe and installation of new (final)	Done	Done
Beampipe Installation Review (Final)	Done	Done

8/19/2010

# Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
DAQ Tests	Done	PHENIX
Purge Gas From Detectors	Done	PHENIX, CAD remove LOTO
Install and align VTX rail attachment hardware to CM	Done	Using the HBD I-beam attachment hardware
Install and align VTX rails parallel to beam line	Done	Using the HBD I-beams
Remove BP Collar	Done	Done
Move MMS south	Done	PHENIX Techs
Prep EC for move to EC	Done	PHENIX Techs
Close North and South BP gate valves and lock closed for until new BP is installed	Done	CAD Vac Group
Open and disassemble wall	Done	Done
Remove EC ladder and fold platforms	Done	Carpenters & Riggers
Move EC to AH	Done	PHENIX Techs
Install cart	Done	PHENIX Techs
Move Collars to AH	Done	PHENIX Techs
Install decking	Done	PHENIX Techs
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Install Manlift	Done	PHENIX Techs
Send beampipe to CERN for NEG Coating	Done	CAD Vacuum

8/19/2010

# Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Remove RPC2 Prototype, support brackets, cabling & Piping	Done	In Progress PHENIX Techs, CAD Techs , Electrician
Remove MMS east vertical lampshade	Done	CAD Techs
4th of July Holiday & Floating Holiday	Done	
Remove HBD's and HBD cables Remove RXNP's and cables	Done	PHENIX Techs ASAP
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Inspect Gap 5 south for legacy items/problems	Done	PHENIX Techs
Design BP installation and survey tools/fixtures	Done	
Receive BP transitions & spool back at BNL from SAES after NEG Coating	Done	
Remove BBC's	Done	PHENIX Techs ASAP
Remove wiring, walkovers, FCAL and scintillator hardware that would otherwise interfere with installation	Done	PHENIX Techs
4th of July Holiday	Done	Enjoy
Address legacy items/problems as convenient prior to shutdown start	Done	PHENIX Techs in progress

8/19/2010

# Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Remove RPC prototype	Done	PHENIX/CAD Techs
Position MMS for Vacuum break	Done	PHENIX Techs
Break vacuum on north side of MMS	Done	CAD Vac Techs
Remove south bellows	Done	CAD Vac Techs
Gas Pad expansion completion (grouting)	Done	Tasks TBD
Remove MPC's	Done	PHENIX Techs ASAP
Install Temporary supports for old BP	Done	Supports TBD
Move MMS north, remove spool and south3-5 transition	Done	PHENIX Techs
Move the MMS south & Prep MMS for move to AH	Done	Begin MMS prep with shutdown start
Move CM south, remove north bellows	Done	PHENIX & CAD Vac Techs
Move old Be bp south into MMS and move CM north	Done	PHENIX Techs
Move MMS to shutdown park position	Done	PHENIX Techs
Remove old Be BP	Done	PHENIX Techs
VTX Survey Plan	Done	Consult w/ F. Karl
Install lighting & relocate sensors as necessary	Done	Electrician in progress

8/19/2010

# Completed Tasks, Continued

TECHNICAL SUPPORT NO-O

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Temporarily relocate, re-position or otherwise address interfering piping, cable trays	Done	PHENIX (w/ CAD Help?), Electrician
Pre-survey $\frac{1}{2}$ octant reference points	Done	PHENIX Techs & Surveyors
Build/install access and work platforms for walk on top of MuID steel including stairs from MMS eyebrow	Done	Carpenters
Final cleaning and prep of gap 5 for grouting	Done	PHENIX Techs
Position lifting equipment in tunnel	Done	Riggers
Install and align base structures on east and west sides of gap 5	Done	PHENIX Techs & Riggers
Prepare for grouting	Done	PHENIX Techs & Masons
RHIC Summer Sunday Tour	Done	